

FIGURE 1

A: BoNTA(H_c) synthetic gene (Version #1) SEQ ID NO: 1

GAATTGAAACGatgCGTCTGCTGTACCTCACTGAATAACATCAAGAAC
ATCATCAATAACCTCCATCCTGAACCTGCCTACGAATCCAATCACCTGAT
CGACCTGTCTCGCTACGCTTCAAATCAACATCGTTCTAAAGTTAATC
TCGATCCGATCGACAAGAATCAGATCCAGCTGTTCAATCTGGAATCTTCC
AAAATCGAAGTTATCCTGAAGAATGCTATCGTATACAACACTATGTACG
AAAACCTCTCCACCTCCTCTGGATCCGTATCCGAAATACTCAACTCC
ATCTCTGAACAATGAATAACACCACATCAACTGCATGGAAAACAATT
CTGGTTGGAAAGTATCTCTGAACATACGGTAAATCATCTGGACTCTGCAG
GACACTCAGGAAATCAAACAGCGTGTGATTCAAATACTCTCAGATGA
TCAACATCTGACTACATCAATCGCTGGATCTCGTTACCATCACCAAC
AATCGTCTGAATAACTCCAAAATCTACATCAACGCCGCTGATCGACC
AGAAACCGATCTCCAATCTGGTAACATCCACGCTCTAATAACATCATG
TTCAAACCTGGACGGTTCTCGTGACACTCACCGCTACATCTGGATCAAATA
CTTCAATCTGTTCGACAAAGAACTGAACGAAAAAGAAATCAAAGACCTG
TACGACAACCAGTCCAATTCTGGTATCCTGAAAGACTCTGGGGTACTA
CCTGCAGTACGACAAAACCGTACTACATGCTGAATCTGTACGATCCGAAC
AAATACGTTGACGTCAACAAATGTAGGTATCCGCCGTTACATGTACCTGA
AAGGTCCCGGTGGTCTGTTATGACTACCAACATCTACCTGAACCTCTCC
CTGTACCGTGGTACCAAATTCAATCATCAAGAAATACGCGTCTGGTAACA
AGGACAATATCGTCGCAACAATGATCGTGTATACATCAATGTTGTTAGTT
AAGAACAAAGAATACCGTCTGGTACCAATGCTTCTCAGGCTGGTAG
AAAAGATCTGTCTGCTCTGGAAATCCCGGACGGTTGTAATCTGTCTCAG
GTAGTTGTAATGAAATCCAAGAACGACCAAGGGTATCACTAACAAATGCA
AAATGAATCTGCAGGACAACAATGGTAACGATATCGGTTCATCGGTTT
CCACCAAGTCAACAATATCGCTAAACTGGTTCTCCAACGGTACAATC
GTCAGATCGAACGTTCTCTCGCACTGGGTTGCTCTGGGAGTTCATC
CCGGTTGATGACGGTGGGTGAACGTCCGCTGtaaGAATT
CCGGTTGATGACGGTGGGTGAACGTCCGCTGtaaGAATT

B: BoNTA(H_c) encoded protein (Version #1) SEQ ID NO: 2

MRLLSTFTEYIKNIINTSILNLRYESNHLIDLRYASKINIGSKVNFDPIDKNQI
QLFNLESSKIEVILKNAIVYNSMYENFSTSFWIRIPKYFNSISLNNEYTIINCME
NNSGWKVSLNYGEIWTLQDTQEIKQRVVFKYSQMINISDYINRWIFVTITNN
RLNNSKIYINGRLIDQKPISNLGNIHASNIMFKLDGCRDTHR YIWIKYFNLF
DKELNEKEIKDLYDNQSNSGILKDFWGDYLQYDKPYMLNLYDPNKYVDV
NNVGIRGYMLKGPRGSVMTTNIYLNSSLYRGTKFIKKYASGNKDNIVRN
NDRVYINVVKNKEYRLATNASQAGVEKILSALEIPDVGNLSQVVVMKSKN
DQGITNKCKMNLQDNNGNDIGFIGFHQFNNIAKL VASNWYNRQIERSSRTL
GCSWEFIPVDDGWGERPL*

FIGURE 2

A: BoNTA(H_c) synthetic gene (version #2) SEQ ID NO: 3

GAATTGAAACGatgTCTACCTTCACTGAATAACATCAAGAACATCATCAAT
ACCTCCATCCTGAACCTGCGCTACGAATCCAATCACCTGATCGACCTGTC
TCGCTACGCTTCCAAAATCAACATCGTTCTAAAGTTAACTTCGATCCGA
TCGACAAGAACATCAGATCCAGCTGTTCAATCTGGAATCTTCCAAAATCGA
AGTTATCCTGAAGAACATGCTATCGTATAACAACACTATGTACGAAAACCTCT
CCACCTCCTCTGGATCCGTATCCGAAATACTTCAACTCCATCTCTG
AACAAATGAATAACACCATCATCAACTGCATGGAAAACAATTCTGGTTGGA
AAGTATCTCTGAACACTACGGTGAAATCATCTGGACTCTGCAGGACACTCA
GGAAATCAAACAGCGTGGTATTCAAATACTCTCAGATGATCAACATCT
CTGACTACATCAATCGCTGGATCTCGTACCATCACCAACAATCGTCTG
AATAACTCCAAAATCTACATCAACGGCCGTCTGATCGACCAGAAACCGA
TCTCCAATCTGGTAACATCCACCGCTCTAATAACATCATGTTCAAACACTG
GACGGTTGTCGTGACACTCACCGCTACATCTGGATCAAATACTTCATCT
GTTGACAAAAGAACACTGAACGAAAAAGAAATCAAAGACCTGTACGACAA
CCAGTCCAATTCTGGTATCCTGAAAGACTCTGGGTGACTACCTGCAGT
ACGACAAACCGTACTACATGCTGAATCTGTACGATCCGAAACAATACGT
TGACGTCAACAATGTAGGTATCCCGGTTACATGTACCTGAAAGGTCCG
CGTGGTTCTGTTATGACTACCAACATCTACCTGAACTCTCCCTGTACCG
TGGTACCAAATTCTCATCATCAAGAAATACCGCTCTGGTAACAAGGACAAT
ATCGTTCGCAACAATGATCGTGTATACATCAATGTTGTTAGAAACAA
AGAATACCGTCTGGCTACCAATGCTCTCAGGCTGGTAGAAAAGATC
TTGTCTGCTCTGGAAATCCGGACGTTGTAATCTGTCTCAGGTAGTTGT
AATGAAATCCAAGAACGACCAGGGTATCACTAACAAATGCAAATGAAT
CTGCAGGACAACAATGGTAAACGATATCGGTTCATCGGTTCCACCAGTT
CAACAATATCGCTAAACTGGTTGCTTCAACTGGTACAATCGTCAGATCG
AACGTTCCCTCTCGCACTCTGGTTGCTCTGGGAGTTCATCCGGTTGAT
GACGGTTGGGGTGAACGTCCGCTGtaaGAATTG

B: BoNTA(H_c) encoded protein (Version #2) SEQ ID NO: 4

MSTFTEYIKNIINTSILNLYESNHLIDLRYASKINIGSKVNFDPIDKNQIQLF
NLESSKIEVILKNAIVYNSMYENFSTSFWIRIPKYFNSISLNNEYTIINCMEENN
GWKVSLSNYGEITWTLQDTQEIKQRVVFKYSQMINISDYINRWIFVTITNNRLN
NSKIYINGRLIDQKPISNLGNIHASNNIMFKLDGCRDTHRHYIWIKYFNLFDE
LNEKEIKDLYDNQSNSGILKDFWDYLYQDKPYMLNLYDPNKYVDVNNV
GIRGYMLKGPRGSVMTTNIYLNSSLYRGTKFIKKYASGNKDNIVRNNDRV
YINVVKNKEYRLATNASQAGVEKILSALEIPDVGNLSQVVVMKSNDQGI
TNKCKMNLQDNNNGNDIGFIGFHQFNIAKLVASNWYNRQIERSSRTLGC
EFIPVDDGWGERPL*

FIGURE 3

A: BoNTA(H_c) synthetic gene (Version #3) SEQ ID NO: 5

GAATTCGAAACGatgGCCTCTACCTTCACTGAATAACATCAAGAACATCATC
AATACCTCCATCCTGAACCTGCGCTACGAATCCAATCACCTGATCGACCT
GTCTCGCTACGCTTCCAAAATCAACATCGGTTCAAAGTTAACTTCGATC
CGATCGACAAGAACATCAGATCCAGCTGTTCAATCTGGAAATCTTCCAAAAT
CGAAGTTATCCTGAAGAACATGCTATCGTATACAACACTATGTACGAAAAC
TCTCCACCTCCTCTGGATCCGTATCCGAAATACTCAACTCCATCTCTC
TGAACAATGAATAACACCACATCAACTGCATGGAAAACAATTCTGGTTG
GAAAGTATCTCTGAACATCGGTGAAATCATCTGGACTCTGCAGGACACT
CAGGAAATCAAACAGCGTGTGTATTCAAATACTCTCAGATGATCAACA
TCTCTGACTACATCAATCGCTGGATCTCGTTACCATCACCAACAATCGT
CTGAATAACTCCAAAATCTACATCAACGGCCGTCTGATGACCAGAAC
CGATCTCCAATCTGGTAACATCCACGCTCTAATAACATCATGTTCAA
CTGGACGGTTGTCGTGACACTCACCGCTACATCTGGATCAAATACTTCAA
TCTGTTGACAAAGAACTGAACGAAAAAGAAATCAAAGACCTGTACGAC
AACCAAGTCCAATTCTGGTATCCTGAAAGACTTCTGGGGTACTACCTGCA
GTACGACAAACCGTACTACATGCTGAATCTGTACGATCCGAACAAATAC
GTTGACGTCAACAAATGTAGGTATCCGCGGTTACATGTACCTGAAAGGTC
CGCGTGGTTCTGTTATGACTACCAACATCTACCTGAACCTCCCTGTAC
CGTGGTACCAAATTCAATCATCAAGAAATACGCGTCTGGTAACAAGGACA
ATATCGTCGCAACAAATGATCGTGTATACATCAATGTTGTAGTTAAGAAC
AAAGAATACCGTCTGGCTACCAATGCTTCTCAGGCTGGTAGAAAAGA
TCTTGTCTGCTCTGGAAATCCCAGCAGGGTATCACTAACAAATGCAAAATGA
GTAATGAAATCCAAGAACGACCAGGGTATCACTAACAAATGCAAAATGA
ATCTGCAGGACAACAATGGTAACGATATCGGTTATCGGTTACATCGGTTCCACCAG
TTCAACAAATATCGCTAAACTGGTTGCTTCAACTGGTACAATCGTCAGAT
CGAACGTTCCCTCGCACTCTGGGGTCTTGGGAGTTATCCCGGTTG
ATGACGGTTGGGGTGAACGTCCGCTGtaaGAATT

B: BoNTA(H_c) encoded protein (Version #3) SEQ ID NO: 6

MASTFTEYIKNIINTSILNLRYESNHLIDLRYASKINIGSKVNFDPIDKNQIQL
FNLESSKIEVILKNAIVYNNSMYENFSTFWIRIPKYFNSISLNNEYTIINCENN
SGWKVSLNYGEIIWTLQDTQEIKQRVVFKYSQMINISDYINRWIFVTITNNRL
NNSKIYINGRLIDQKPISNLGNIHASNNIMFKLDGCRDTHR YIWIKYFNLFDK
ELNEKEIKDLYDNQSNSGILKDFWGDYLQYDKPYYMLNL YDPNKYVDVNN
VGIRGYMLKGPRGSVMTTNIYLNSSLYRGTKFIKKYASGNKDNIVRNNDR
VYINVVKNKEYRLATNASQAGVEKILSALEIPDVGNLSQLVVMKSKNDQ
GITNKCKMNLQDNNGNDIGFIGFHQFNNIAKLVASNWYNRQIERSSRTLGC
WEFIPVDDGWGERPL*

FIGURE 4

A: BoNTB(H_c) synthetic gene SEQ ID NO: 7

GAATTCACGatgGCCAACAAATAACAATTCCGAAATCCTGAACAATATCAT
CCTGAACCTGCGTTACAAAGACAACAATCTGATCGATCTGTCTGGTTACG
GTGCTAAAGTTGAAGTATACGACGGTGTGAACTGAATGACAAGAACCA
GTTCAAACGTACCTCTCCGCTAATCTAAGATCCGTGTTACTCAGAACATC
AGAACATCATCTCAACTCCGTATTCCCTGGACTTCTGTCTGTTCTCTGGA
TTCGTATCCGAAATAACAAGAACGACGGTATCCAGAATTACATCCACAA
TGAATACACCATCATCAACTGCATGAAGAATAACTCTGGTTGGAAGATC
TCCATCCGCGGTAACCGTATCATCTGGACTCTGATCGATATCAACGGTAA
GACCAAATCTGTATTCTCGAATAACAACATCCGTGAAGAACATCTGTAA
ACATCAATCGCTGGTTCTCGTACCATCACCAATAACCTGAACAATGCT
AAAATCTACATCAACGGTAAACTGGAATCTAATACCGACATCAAAGACA
TCCGTGAAGTTATCGCTAACGGTGAAATCATCTTCAAACTGGACGGTGA
CATCGATCGTACCCAGTTCATCTGGATGAAATACTTCTCCATCTTCAACA
CCGAACTGTCTCAGTCCAATATCGAAGAACGGTACAAGATCCAGTCTTA
CTCCGAATAACCTGAAAGACTCTGGGGTAATCCGCTGATGTACAACAAA
GAATACTATATGTTCAATGCTGGTAACAAGAACTCTTACATCAAACGTA
AGAAAGACTCTCCGGTTGGTGAATCCTGACTCGTCCAAATACAACCA
GAACCTAAATACATCAACTACCGCGACCTGTACATCGGTGAAAAGTTC
ATCATCCGTCGCAAATCTAATCTCAGTCCATCAATGATGACATCGTACG
TAAAGAAGACTACATCTACCTGGACTTCTCAACCTGAATCAGGAATGG
CGTGTATACACCTACAAGTACTTCAAGAAAAGAAGAAGAAAAGCTTTCC
TGGCTCCGATCTGTGATTCCGACGAACCTCTACAAACACCATTCCAGATCAA
GAATACGACGAACAGCCGACCTACTCTGCCAGCTGCTGTTCAAGAAAAG
ATGAAGAATCTACTGACGAAATCGGTCTGATCGGTATCCACCGTTCTAC
GAATCTGGTATCGTATTGAAAGAATAACAAAGACTACTTCTGCATCTCCAA
ATGGTACCTGAAGGAAGTTAAACGCAAACCGTACAACCTGAAACTGGGT
TGCAATTGGCAGTTCATCCGAAAGACGAAGGTTGGACCGAAtagtaaGAA
TTC

B: BoNTB(H_c) encoded protein SEQ ID NO: 8

MANKYNSEILNNIILNLR YKDNNLIDLSGYGAKVEVDGVELNDKNQFKLT
SSANSKIRVTQNQNIIFNSVFLDFSVFWIRIPKYKNDGIQNYIHNEYTIINCM
KNNSGWKISIRGNRIIWTLIDINGKTKSVFFEYNIRESEYINRWFFVTITNNL
NNAKIYINGKLESNTDIKDIRVIANGEIIFKLDGDIDRTQFIWMKYFSIFNTTEL
SQSNIEER YKIQSSEYLKDFWGNPLMYNKEYMFNAGNKNSYIKLKKDSP
VGEILTRSKYNQNSKYINYRDLYIGEKFIIRRKSNSQSINDDIVRKEDYIYLD
FNLNQEWRVYTYKFKEEKLFLAPISDSDELYNTIQIKEYDEQPTYSQL
LFKKDEESTDEIGLIGIHRFYESGIVFEEYKDYFCISKWYLKEVKRKPYNLKL
GCNWQFIPKDEGWTE**

FIGURE 5

A: BoNTC₁(H_c) synthetic gene SEQ ID NO: 9

GAATTCACGatgACCATCCCATTCAACATCTTCTCCTACACCAACAACACTCC
CTGTTGAAGGACATCATCAACGAGTACTTCAACAAACATCAACGACTCCA
AGATCCTGCTCCCTGCAGAACCGTAAGAACACACCTGGTCGACACCTCCGG
TTACAACGCCGAGGTCTCCGAGGAGGGTGACGTCAGCTGAACCCAATC
TTCCCATTGACTTCAAGCTGGGTTCTCCGGTGAAGGACAGAGGTAAGGT
CATCGTCACCCAGAACGAGAACATCGTCTACAACACTCCATGTACGAGTCC
TTCTCCATCTCCTCTGGATCAGAAATCAACAAGTGGGTCCTCAACTTGCC
AGGTTACACCATATCGACTCCGTCAAGAACAACTCCGGTTGGTCCATCG
GTATCATCTCCAACCTCCTGGTCTCACCCCTGAAGCAGAACGAGGACTCC
GAGCAGTCCATCAACCTCTCCTACGACATCTCCAACAAACGCTCCTGGTTA
CAACAAGTGGGTTCTCGTCACCGTCACCAACAAACATGATGGGTAACATG
AAGATCTACATCAACGGTAAGCTGATCGACACCATCAAGGTCAAGGAGT
TGACCGGTATCAACCTCTCCAAGAACATCACCTCGAGATCAACAAAGATC
CCAGACACCGGTCTGATCACCTCCGACTCCGACAACATCAACATGTGGA
TCCGTGACTTCTACATCTCGCCAAGGAGTTGGACGGTAAGGACATCAA
CATCCTGTTCAACTCCTGCAGTACACCAACGTCGTCAAGGACTACTGGG
GTAACGACCTGAGATAACAACAAGGAGTACTACATGGTCAACATCGACTA
CTTGAACAGATACTGTACGCCAACTCCAGACAGATCGTCTTCAACACC
AGACGTAACAACAACGACTTCAACGAGGGTTACAAGATCATCATCAAGC
GTATCAGAGGTAACACCAACGACACCAGAGTCAGAGGTGGTACATCCT
GTACTTCGACATGACTATCAACAAACAAGGCCTACAACCTGTTCATGAAG
AACGAGACCATGTACGCCGACAACCACCTCCACCGAGGACATCTACGCCA
TCGGTCTCGTGAGCAGACCAAGGACATCAACGACAACATCATCTTCCA
GATCCAGCCAATGAACAAACACTTACTACTACGCTTCCCAGATCTCAAGT
CCAACCTCAACGGTGAGAACATCTCCGGTATCTGTTCCATCGGTACCTAC
AGATTCCGTCTGGGTGGTACTGGTACAGACACAACACTACTTGGTCCAAC
TGTCAAGCAGGGTAACTACGCCCTTGTGGAGTCCACTTCCACCCACT
GGGGATTCGTCCCAGTCTCCGAGtaatgGAATTc

B: BoNTC₁(H_c) encoded protein SEQ ID NO: 10

MTIPFNIFSYTNNSLKDIIINEYFNNNINDSKILSLQNRKNTLVDTSGYNAEVSE
EGDVQLNPIFPFDFKLGSSGEDRGKVIVTQNENIVNSMYESFSISFWIRINK
WVSNLPGYTIIDSVKNNNSGWSIGIISNFLVFTLKQNEDSEQSINFSDISNNAP
GYNKWFFFVTVTNNMMGNMKIYINGKLIDTIKVKELTGINFSKTITFEINKPD
TGLITSDDNINMWIRDFYIFAKELDGKDINILFNSLQYTNVVKDYGNDLR
YNKEYYMVNIDYLNRYMYANSRQIVFNTRNNNDFNEGYZKIIKRIRGNTN
DTRVRGGDILYFDMTINNKAYNLFMKNETMYADNHSTEDIYAIGLREQTKD
INDNIIFQIOPMNNTYYASQIFKSNFNGENISGICSIGTYRFRLGGDWYRH
YLVPVKQGNYASLLESTSTHWGFVPVSE**

FIGURE 6

A: BoNTD(H_c) synthetic gene SEQ ID NO: 11

GAATTCACGatgCGTTGAAGGCTAAGGTCAACGAGTCCTCGAGAACAC
CATGCCATTCAACATCTTCTCCTACACCAACAACCTCCTGTTGAAGGACA
TCATCAACGAGTACTTCAACTCCATCAACGACTCCAAGATCTTGTCTTG
CAGAACAAAGAAGAACGCCCTGGTCGACACCTCCGGTACAACGCCGAGG
TCAGAGTCGGTGACAACGTCCAGTTGAACACCATCTACACCAACGACTT
CAAGTTGTCTCTCCGGTGACAAGATCATCGTCAACTGAACAACAACA
TCTTGTACTCCGCCATCTACGAGAACTCCTCTGTCTCCTCTGGATCAAG
ATCTCCAAGGACTTGACCAACTCCCACAACGAGTACACCATCATCAACT
CCATCGAGCAGAACTCCGGTTGGAAAGTTGTATCCGTAAACGGTAACAT
CGAGTGGATCTTGCAGGACGTCAACCGTAAGTACAAGTCCTTGATCTTC
ACTACTCCGAGTCCTGTCCCACACCGGGTACACCAACAAGTGGTTCTC
GTCACCATCACCAACAACATCATGGGTTACATGAAGTTGTACATCAACG
GTGAGTTGAAGCAGTCCCAGAAGATCGAGGACCTGGACGAGGTCAAGCT
GGACAAGACCATCGTCTCGGTATCGACGAGAACATCGACGAGAACCCAG
ATGTTGTGGATCCGTGACTTCAACATCTTCTCCAAGGAGCTGTCCAACGA
GGACATCAACATCGTCTACGAGGGTCAGATCCTGAGGAACGTCAAG
GACTACTGGGTAACCCACTGAAGTTCGACACCGAGTACTACATCATCA
ACGACAACATACGACCGTTACATCGCCCCAGAGTCCAACGTCTGGT
CCTGGTCCAGTACCCCTGACCGTTCCAAGCTGTACACCGTAACCCATCA
CCATCAAGTCCGTCTCCGACAAGAACCTTACTCCGTATCCTGAACGGT
GACAACATCATCCTGCACATGCTGTACAACACTCCGTAAAGTACATGATCAT
CCGTGACACCGACACCATCTACGCCACCCAGGGTGGTACTGTTCCAG
AACTGTGTCTACGCCCTGAAGCTGCAGTCCAACCTGGTAACACTACGGTAT
CGGTATCTCTCCATCAAGAACATCGTCTCCAAGAACAGTACTGCTCCC
AGATCTTCTCCTCCCTCCGTGAGAACACCATGCTGCTGGCCGACATCTAC
AAGCCTTGGCGTTCTCCTCAAGAACGCCAACCTCCTCTGGAAAGTTCATCT
CAACTACGAGACCAAGCTGCTGCCACCTCCTCTGGAAAGTTCATCT
CCCGTGACCCAGGTTGGTCGAGtaatagGAATT

B: BoNTD(H_c) encoded protein SEQ ID NO: 12

MRLKAKVNESFENTMPNIFSYTNNSLKDIINEYFNSINDSKILSLQNKNA
LVDTSGYNAEVRVGDNVQLNTIYTNDFKLSSSGDKIIVNLNNNLYSAIYENS
SVSFWKISKDLTNSHNEYTIINSIEQNSGWKLCIRNGNIEWILQDVNRKYKS
LIFDYSESLSHTGYTNKWFFVTITNNIMGYMKLYINGELKQSQKIEDLDEVK
LDKTIVFGIDENIDENQMLWIRDFNIFSKELESNEDINIVYEGQILRNVIKDYW
GNPLKFDTTEYYIINDNYIDRYIAPESNVLVLQYPDRSKLYTGNPITIKSVSD
KNPYSRILNGDNILHMLYNSRKYMIIRDTDIYATQGGDCSQNCVYALKLQ
SNLGNYGIGIFSNIKIVSKNKYCSQIFSSFRENTMLLADIYKPWRFSFKNA YTP
VAVTNYETKLLSTSSFWKFISRDPGWVE**

FIGURE 7

A: BoNTE(H_c) synthetic gene SEQ ID NO: 13

GAATTCACCAcgGGAGAGAGTCAGCAAGAACTAAATTCTATGGTAACGTGATC
TACCCCTAAATAATAGTATTCTTTAACGTTCTTATACAGATGATAA
AATTAAATTCTACTTCAACAAGTTCTCAAGAGAATTAAGTCTTCTC
CGTTAAACATGAGATACAAGAATGATAAATACGTCGACACTCCGGT
TACGACTCCAATATCAACATTAACCGGTGACGTGACAAGTACCCAACTA
ACAAAAACCAATTGGTATCTACAACGACAAGCTACTGAGCTGAACAT
CTCTCAAAACGACTACATTATCTACGACAACAAGTACAAGAACCTCTA
TTCTTCTGGTCAGGATTCTAACACTACGACAACAAGATCGTCAACGTT
ACAACGAGTACACTATCATCAACTGTATGAGAGACAACAACCTCCGGT
GGAAGGCTCTCTAACCAACGAGATCATTGGACCTTGCAAGACAA
CGCAGGTATTAAACAAAAGTTAGCATTCAACTACGGTAACGCAAACGGT
ATTCTGACTACATCAACAAGTGGATTTCGTCACTATCAACGACAG
ATTAGGTGACTCTAACGTTACATTACGGTAACCTAACGACAAAGT
CCATTAAACTTAGGTAACATTACGTTCTGACAACATCTTATTCAAG
ATCGTTAACTGCAGTTACACCAGATACTGGCATTAGATACTTCAACAT
TTCGACAAGGAGTTAGACGAGACCGAGATTCAAACCTTATACAGCAAC
GAACCTAACACCAATATTGAAGGACTTCTGGGTAACTACTTGCTTTA
CGACAAGGAATACTACTTAAACGTGTTAAAGCCAAACAACCTCATT
GATAGGAGAAAGGATTCTACTTAAACGATTAACAACATCAGAAGCAGT
TTCTTCTAGCTAACAGATTATACTCTGGTATCAAGGTTAAGATCCAAAGA
GTTAACAACTCTCTACTAACGATAACCTGTTAGAAAAGAACGATCAGGT
CTATATTAACCTCGCTAGCAAGACTCACTTATTCCCATTATATGCTG
ATACCGCTACCAACAAAGGAGAACGACATCAAGATCTCCTCTGG
CAACAGATTAAACCAAGTCGCTTATGAACCTCGTCGGTAACAACGT
CCATGAACCTTAAAATAATAATGGAAATAATATTGGGTTGTTAGGTTTC
AAGGCAGATACTGTAGTTGCTAGTACTTGGTATTATACCCACATGAGAG
ATCACACCAACAGCAATGGATTTGGAACTTATTCTGAAGAACAT
GGATGGCAAGAAAAAtaa
TagGGATCC GCGGCCGC ACGCGT CCCGGG ACTAGT GAATTG

B: BoNTE(H_c) encoded protein SEQ ID NO: 14

MGESQQELNSMVDTLNNSIPFKLSSYTDDKILISYFNKFFKRIKSSSVLNMR
YKNDKYVDTSGYDSNININGDVYKYPTNKNQFGIYNDKTELNIQNDYII
DNKYKNFSISFWVRIPNYDNKIVNVNEYTIINCMRDNNSGWKVSLNHNEII
WTLQDNAGINQKLAFNYGNANGISDYINKWIFVTITNDRLGDSKLYINGNLI
DQKSILNLGNIHVSNDNILFKIVNCSYTRYIGIRYFNIFDKELDETEIQTLYSNEP
NTNLKDFWGNYLLYDKEYYLLNVLKPNNFIDRRKDSTLSINNIRSTILLANR
LYSGIKVKIQRVNNSSTDNLVRKNDQVYINFVASKTHLFPLYADTATTNKE
KTIKISSSGNRFNQVVVMNSVGNNCTMFKNNNNGNNIGLLGFKA
DTVVASTWYYTHMRDHTNSNGCFWNFISEEHGWQEK**

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FIGURE 9

A: BoNTF(H_c) synthetic gene SEQ ID NO: 15

GAATTCACGatgTCCTACACCAACGACAAGATCCTGATCTTGTACTTCAAC
AAGCTGTACAAGAAGATCAAGGACAACATCCATCTGGACATGAGATACG
AAAACAATAAGTCATCGACATCTCCGGTTACGGTCCAACATCTCCATC
AACGGTACGTCTACATCTACTCCACCAATAGAAACCAGTCGGAATCT
ACTCCTCCAAGCCTCCGAGGTCAACATCGCTCAGAACAAACGACATCAT
CTACAACGGAAGATAACCAAGAACTCTCCATCTCCTCTGGGTCCGTATCC
CAAAGTACTTCAACAAGGTCAACCTGAATAACGAGTACACCATCATCGA
CTGCATCCGTAACAATAACTCCGGATGGAAGATCTCCCTGAACATACAAAC
AAGATCATCTGGACCCTGCAGGACACCGCCGGTAACAATCAGAAGTTGG
TCTTCAACTACACCCAGATGATCTCCATCTCGACTACATCAACAAGTGG
ATCTCGTACCATCACCAATAACCGTTGGAAACTCCAGAACATCTACAT
CAACGGTAACCTGATCGACGAGAAGTCCATCTCCAACCTGGTGACATC
CACGTCTCCGACAACATTGTTCAAGATCGTCGGTTGTAACGACACCCG
TTACGTGGGATCCGTTACTTCAAAGTCTCGACACTGAGTTGGTAAGA
CCGAGATCGAGACCTGTACTCCGACGAGCCTGACCCATCCATCCTGAA
GGACTTCTGGGTAACTACCTGCTGTACAACAAACGTTACTACTGCTGA
ACTTGTGCGTACCGACAAGTCCATCACCCAGAACTCCAACCTCTTGAAC
ATCAACCAGCAGAGAGGGTCTACCAAGGCCAACATCTCTCCAACA
CCAGATTGTACACCGGAGTCGAGGTCATTATCAGAAAGAACGATCTAC
TGATATTCCAACACCGATAACTCGTCAGAAAGAACGATCTGGCTTACA
TCAACGTTGTCGACAGAGATGTCGAATACCGTCTGTACGCCGATATCT
ATCGCCAACCTGAAAAGATCATCAAGCTGATCCGTACCTCTAACTCTA
ACAACCTCTGGGACAACATCGTCATGGACTCCATCGTAATAACTGT
ACCATGAACCTCCAGAACAAACACGGTGGAAACATCGGTTGTTGGGTT
TCCACTCCAACAACCTGGTCGCTCCTCCTGGTACTACAACAAACATCCG
AAGAACACCTCCTCCAACGGTTGCTCTGGCCTCATCTCCAAGGAGCA
CGGTTGGCAGGAGAACtaatagGAATTc

B: BoNTF(H_c) encoded protein SEQ ID NO: 16

MSYTNDKILILYFNKLYKKIKDNSILDMRYENNKFIDISGYGSNISINGDVYIY
STNRNQFGIYSSKPSEVNIAQNNDIYNGRYQNFSISFWVRIPKYFNKVNLNN
EYTIIDCIRNNNSGWKISLNYNKIIWTLQDTAGNNQKLVFNYTQMISISDYIN
KWIFVTITNNRLGNSRIYINGNLIDEKSISNLGDIHVSNDNLFKIVGCNDTRYV
GIRYFKVFDTELGKTEIETLYSDEPDPSILKDFWGNYLLYNKRYYLLNLLRT
DKSITQNSNFLNINQQRGVYQKPNIFSNTLYTGVEVIIRKNGSTDISNTDNF
VRKNDLAINVVDRDVEYRLYADISIAKPEKIKLIRTSNSNNSLGQIIVMDSI
GNNTMNFQNNNGGNIGLLGFHSNNLVASSWYNNIRKNTSSNGCFWSFIS
KEHGWQEN**

FIGURE 10

A: BoNTG(H_c) synthetic gene SEQ ID NO: 17

GAATTCACGatgAAGGACACCATCCTGATCCAGGTCTTCAACAACTACATC
TCCAACATCTCCTCCAACGCCATCCTGTCCTACCGTGGTGGTCG
TCTGATCGACTCCTCCGGTTACGGAGCCACCATGAACGTCGGTCCGACG
TCATCTTCAACGACATCGGTACCGTCAGTTCAAGCTGAACAACACTCCGA
GAACTCCAACATCACCGCCCACCAAGTCCAAGTTCGTCGTCTACGACTCCA
TGTCGACAACATTCTCCATCAACTTCTGGGTCCGTACCCCAAAGTACAAC
AACAAACGACATCCAGACCTACCTGCAGAACGAGTACACCATCATCTCCT
GTATCAAGAACGACTCCGGTTGGAAGGTCTCCATCAAGGGAAACCGTAT
CATCTGGACCTGATCGACGTCAACGCCAAGTCCAAGTCCATCTTCTCG
AGTACTCCATCAAGGACAACATCTCCGACTACATCAACAAGTGGTTCTCC
ATCACCATCACCAACGACCGTCTGGTAACGCCAACATCTACATCAACG
GTTCCCTGAAGAACGACTCCGAGAACGATCCTGAACCTGGACCGTATCAACTC
CTCCAACGACATCGACTTCAAGCTGATCAACTGTACCGACACCACCAAG
TTCGTCTGGATCAAGGACTTCAACATCTCGGTGAGCTGAACGCCAC
CGAGGTCTCCTCCCTGTACTGGATCCAGTCCTCCACCAACACCCCTGAAGG
ACTTCTGGGGAAACCCACTGCGTTACGACACCCAGTACTACCTGTTCAAC
CAGGGTATGCAGAACATCTACATCAAGTACTTCTCCAAGGCCTCCATGG
GTGAGACCGCCCCCTCGTACCAACTCAACAAACGCCCATCAACTACCA
GAACCTGTACCTGGGTCTGCGTTCATCATCAAGAACGGCCTCCAACCTCCC
GTAACATCAACAAACGACAACATCGTCCGTGAGGGTACTACATCTACCT
GAACATCGACAACATCTCCGACGAGTCCTACCGTGTCTACGTCCGGTCA
ACTCCAAGGAGATCCAGACCCAGCTGTTCTGGCCCCAATCAACGACGA
CCCTACCTTCTACGACGTCCTGCGAGATCAAGAACGACTACGAGAACACC
ACCTACAACGTCAAGATCCTGTGCGAGAACACCAAGACCTCGGAC
TGTCGGTATCGGTAAAGTCGTCAAGGACTACGGTACGTCTGGGACACC
TACGACAACACTTCTGTATCTCCCAGTGGTACCTGCGTCGTATCTCCGA
GAACATCAACAAAGCTGCGTCTGGGATGTAACTGGCAGTTCACTCCCAGTC
GACGAGGGTTGGACCGAGtaatagGAATT

B: BoNTG(H_c) encoded protein SEQ ID NO: 18

MKD TIL IQV FNN YIS NISS NAIL SLS YRG GRL IDSS GY GAT MN VGS DV IFNDIG
NGQFKL NN SENS NITA HQSKF VVY DSMFDNFS INF WVRTPK YNN NDI QTYL
QNE YTI ISCI KND SGW KVS IKGN RI WTL IDVNA KSKS IFFE YSI KDN ISD YINK
WFSIT ITND RLG NANI YING SLKK SEK ILN LDR IN SS NDID FK LIN CT DTT KFV
WI KDFN IFGRE LN ATE VSSL YWI QSS NTL KDF WGNPLR YDT QYYLFNQGM
QNI YIKYFSKASMGETAPRTNFNNAAINYQNL YLGLRFI KKASNSRNINNDN
IVREGDYIYLNIDNISDES YRVYVLVNSKEI QTQLFLAPIN DDPTFYDV LQIKK
YYEKTTYNCQILCEKDTKTFGLFGIGKFVKD YGYVWDTYDNYFCISQWYLR
RISENINKLRLGCNWQFIPVDEGWTE**

FIGURE 11

A: BoNTA(H_n) synthetic gene SEQ ID NO: 19

atgGCTCTGAACGACCTGTGCATCAAAGTTAACAACTGGGACCTGTTCTTC
TCCCCGTCTGAAGACAACCTCACTAACGACCTGAACAAAAGGCGAAGAAA
TCACCTCCGACACTAACATCGAAGCTGCTGAAGAAAAACATCTCTCTGG
CCTGATCCAGCAGTACTACCTGACTTTCAACTTCGACAACGAACCGGAA
AACATCTCCATCGAAAACCTGTCTCCGACATCATCGGTAGCTGGAACT
GATGCCGAACATCGAACGCTCCGAACGGCAAGAAATACGAACGG
AAATACACCATGTTCCACTACCTGCGTGCTCAGGAATTGAAACACGGTA
AATCTCGTATCGCTCTGACTAACCGTTAACGAAGCTCTGCTGAACCCG
TCTCGCGTTACACCTCTTCTTCCGACTACGTTAACGAAAGTTAACAA
AGCTACTGAAGCTGCTATGTTCTGGGTTGGGTTGAACAGCTGGTTACG
ACTTCACCGACGAAACTCTGAAGTTCCACCACTGACAAAATCGCTGAC
ATCACTATCATCCCCTACATCGGCCGGCTCTGAACACATCGGTAA
GCTGTACAAAGACGACTTCGTTGGTGCTCTGATCTTCTCTGGCGCTGTT
TCCTGCTGGAATTCACTCCCGAAATCGCTATCCCGTTCTGGGTTACCTTC
GCTCTGGTTCTACATCGCTAACAAAGTTCTGACTGTTCAGACCATCGA
CAACGCTCTGTCTAACCGTAACGAAAAATGGGACGAAGTTACAAATAC
ATCGTTACTAACTGGCTGGCTAAAGTTAACACTCAGATCGACCTGATCCG
TAAGAAGATGAAAGAAGCTCTGGAAAACCAGGCTGAAGCTACTAAAGC
TATCATCAACTACCAGTACAACCACTGACACCAGTACACCGAAGAAGAAAAGAAC
ATCAACTTCAACATCGATGACCTGTCCTCTAAACTGAACGAATCCATCAA
CAAAGCTATGATCAACATCAACAAATTCTGAACCACTGCTCTGTTCT
ACCTGATGAACTCTATGATCCCGTACGGCGTTAACGCCCTGGAAGACTTC
GACGCTTCCCTGAAAGACGCTCTGCTGAAATACATCCGTACAACACTACG
GTACTCTGATCGGCCAGGTTGACCGTCTGAAAGACAAGGTTAACAAACAC
CCTGTCTACTGACATCCCCTCCAGCTGCAAATACGTTGACAACCAAGta
a

B: BoNTA(H_n) encoded protein SEQ ID NO: 20

MALNDLCIKVNNWDLFFSPSEDNFTNDLNKGEIITSDTNIEAAEENISLDLIQ
QYYLTFNFDNEPENISIENLSSDIIGQLELMPNIERFPNGKKYELDKYTMFH
LRAQEFEHGKSRIALTNSVNEALLNPSRVYTFFSSDYVKKVNKA
TEAAMFL
GWVEQLVYDFTDETSEVSTTDKIADITIIIPYIGPALNIGNMLYKDDFVGALIF
SGAVILLEFIPEIAIPVLGTFALVSYIANKVLTVQTIDNALSKRNEKWDEVYK
YIVTNWLAKVNTQIDLIRKKMKEALENQAEATKAIINYQYNQYTEE
EKN
NFMIDDLSSKLNESINKAMININKFLNQCSVSYLMNSMIPYGVKRLED
FDASL
KDALLKYIRDNYGTLIGQVDRLKDKVNNTLSTDIPFQLSKYVDNQ*

FIGURE 12

A: BoNTB(H_n) synthetic gene SEQ ID NO: 21

atgGCTCCAGGAATCTGTATCGACGTCGACAACGAGGACTTGTCTTCATC
GCTGACAAGAACTCCTTCTCCGACGACTTGTCCAAGAACGAGAGAATCG
AGTACAACACCCAGTCCAACACTACATCGAGAACGACTTCCAATCAACGA
GTTGATCTGGACACCGACTTGATCTCCAAGATCGAGTTGCCATCCGAGA
ACACCGAGTCCTGACTGACTCAACGTCGACGCTCCAGTCTACGAGAA
GCAACCAGCTATCAAGAACGATTTCACCGACGAGAACACCATCTTCAA
TACCTGTACTCTCAGACCTCCCTGGACATCAGAGACATCTCCTTGAC
CTCTTCTTCGACGACGCCCTGCTGTTCTCCAACAAGGTCTACTCCTTCTT
CTCCATGGACTACATCAAGACTGCTAACAAAGGTCTCGAGGCCGGTTG
TTCGCTGGTTGGGTCAAGCAGATCGTAACGATTTGTCATCGAGGCTAA
CAAGTCCAACACCATGGACAAGATTGCCGACATCTCCTTGATTGTCCC
ACATCGGTTGGCCTTGAACGTCGGTAACGAGAACGCCAAGGGTAACCT
CGAGAACGCTTCGAGATCGCTGGTGCCTCCATCTGTTGGAGTTCATCC
CAGAGTTGTTGATCCCAGTCGTCGGTGCCTCTTGTGGAGTCCTACATC
GACAACAAGAACAGATCATCAAGACCATCGACAACGCTTGACCAAGA
GAAACGAGAACGAGTGGTCCGACATGTACGGTTGATCGTCGCCAATGGTT
GTCCACCGTCAACACCCAATTCTACACCATAAGGAGGGTATGTACAAG
GCCTGAACTACCAGGCCAAGCTTGGAGGAGATCATCAAGTACAGAT
ACAACATCTACTCCGAGAAGGAGAACGTTCAACATTAACATCGACTTCAA
CGACATCAACTCCAAGCTGAACGAGGGTATTAACCAGGCCATCGACAAAC
ATCAACAACCTCATCAACGGTTGTTCCGTCTCCTACTTGATGAAGAAGAT
GATTCCATTGGCCGTCGAGAACGTTGTTGGACTTCGACAAACACCCCTGAAG
AAGAACTTGTGAACATCGACGAGAACAAAGTTGTACTTGATCGGTT
CCGCTGAGTACGAGAACGTTCAACAAAGTACTTGATGAAGACCATCAT
GCCATTGACTTGTCCATCTACACCAACGACACCATTGATCGAGATGT
TCtaa

B: BoNTB(H_n) encoded protein SEQ ID NO: 22

MAPGICIDVDNEDLFFIADKNSFSDDLSKNERIEYNTQSNYIENDFPINELILD
TDLISKIELPSENTESLDFNVDVPVYEKQPAIKKIFDENTIFQYLYSQTFPLD
IRDISLTSSFDDALLFSNKVYSFFSMDYIKTANKVVEAGLFAGWVKQIVNDF
VIEANKSNTMDKIADISLIVPYIGLALNVGNETAKGNFENAEIAGASILLEFI
PELLIPVVGAFLLESYIDNKNKIIKTIDNALTKRNEKWSDMYGLIVAQWLST
VNTQFYTIKEGMYKALNYQAQALEEIIKYRYNIYSEKEKSNNIDFNDINSKL
NEGINQAIIDNINNFINGCSVYLMKKMIPLAVEKLLDFDNTLKKNLLNYIDE
NKLYLIGSAEYEKSKVNKYLKTIIMPFDLSIYTNDTILIEMF*

FIGURE 13

A: BoNTC₁(H_N) synthetic gene SEQ ID NO: 23

atgTCCCTGTACAACAAGACCCTTGACTGTAGAGAGCTGCTGGTGAAGAA
CACTGACCTGCCATTCATCGGTGACATCAGTGACGTGAAGACTGACATCT
TCCTGCGTAAGGACATCAACGAGGAGACTGAGGTGATCTACTACCCAGA
CAACGTGTCAGTAGACCAAGTGTACCTCAGTAAGAACACCTCCGAGCAT
GGACAACTAGACCTGCTTACCCTAGTATCGACAGTGAGAGTGAGATCC
TGCCAGGGGAGAATCAAGTCTTACGACAACCGTACCCAGAACGTGGA
CTACCTGAACCTCCTACTACTACCTAGAGTCTCAGAAGCTGAGTGACAAC
GTGGAGGACTTCACTTCACCGCGTCAATCGAGGAGGCTCTGGACAACA
GTGCAAAGGTGTACACTTACTTCCCTACCCCTGGCTAACAAAGGTGAATGCC
GGTGTGCAAGGTGGTCTGTTCTGATGTGGGCAAACGACGTGGTTGAGG
ACTTCACTACCAACATCCCGCGTAAGGACACACTGGACAAGATCTCAGA
TGTGTCAGCTATCATCCCCTACATCGGACCCGCACTGAACATCTCCAAC
CTGTGCGTCGTGGAAACTTCACTGAGGCATTGCACTGAGTCACTGGTGTCA
ATCCTGCTGGAGGCATTCCCTGAGTTACAATCCCTGCTCTGGGTGCATT
CGTATCTACAGTAAGGTCCAGGAGCGAAACGAGATCATCAAGACCATC
GACAACGTCTGGAGCAGAGGATCAAGAGATGGAAGGACTCCTACGAGT
GGATGATGGAACGTGGTTGTCCAGGATCATCACCCAGTTCAACAAACAT
CTCCTACCAGATGTACGACTCCCTGAACCTACCAAGGCAGGTGCAATCAAG
GCTAAGATCGACCTGGAGTACAAGAAGTACTCCGGAAAGCGACAAGGAG
AACATCAAGAGCCAGGTTGAGAACCTGAAGAACAGTCTGGACGTCAAG
ATCTCGGAGGCAATGAACAACATCAACAAAGTTCATCCGAGAGTGCTCC
TCACCTACCTGTTCAAGAACATGCTGCCTAAGGTCACTCGACGAGCTGAA
CGAGTTGACCGAAACACCAAGGCAAAGCTGATCAACCTGATCGACTCC
CATAACATCATCCTGGTCGGTGAGGTCGACAAGCTGAAGGCAAAGGTAA
ACAACAGCTTCCAGAACttaa

B: BoNTC₁(H_N) encoded protein SEQ ID NO: 24

MSLYNKTLDCRELLVKNTDLPFIGDISDVKTDIFLRKDINEETEVYYPDNVS
VDQVILSKNTSEHGQLDLLYPSIDSESEILPGENQVFYDNRTQNVDYLNSYY
YLESQKLSDNVEDFTFTRSIIEALDNSAKVYTYFPTLANKVNAGVQGGLFL
MWANDVVEDFTTNILRKDTLDKISDVSAIIPYIGPALNISNSVRGNFTEAFA
VTGVILLEAFPEFTIPALGAFVIYSKVQERNEIIKTIDNCLEQRRIKRWKDSYE
WMMGTWLSRIITQFNNISYQMYDSLNYQAGAIKAKIDLEYKKYSGSDKENI
KSQVENLKNSLDVKISEAMNNINKFIRECSVYLFKNMLPKVIDELNEFDRN
TKAKLINLIDSHNILVGEVDKLKAKVNNSFQN*

FIGURE 14

A: BoNTD(H_n) synthetic gene SEQ ID NO: 25

atggccAACTCCCGTGACGACTCCACCTGCATCAAGGTCAAGAACAAACAGA
CTGCCATACGTTGCCGACAAGGACTCCATCTCCCAGGAGATCTTCGAGA
ACAAGATCATCACCGACGAGACCAACGTTAAAACTACTCCGACAAGTT
CTCTTGGACGAGTCCATCCTGGACGGTCAGGTCCAATCAACCCAGAG
ATCGTCGACCCACTGTTGCCAACGTCAACATGGAGCCATTGAACCTGCC
AGGTGAGGAGATCGTCTTCTACGACGACATACCAAGTACGTCGACTAC
TTGAACCTCTACTACTACTTGGAGTCTAAAAGTTGTCTAACAAACGTCGA
GAACATCACCTTGACCACCTCCGTGAGGAGGCCTGGGTTACTCTAACAA
AGATCTACACCTTCCTGCCATCCTGGCTGAGAAGGTTAACAAAGGGTGT
CAAGCTGGTTGTTCTGAACCTGGCCAACGAGGTCGTGAGGACTTCA
CCACCAACATCATGAAGAAGGACACCCCTGGACAAGATCTCCGACGTCTC
CGTCATCATCCCATACTCGGTCCAGCCTTGAACATCGGTAACTCCGCC
TGAGAGGTAACCTCAACCAGGCCTCGCCACCGCCGGTGTGCGCCTCCTG
CTGGAGGGTTCCCAGAGTTCACCATCCCAGCCCTGGGTGTCTCACCTT
CTACTCCTCCATCCAGGAGAGAGAAGATCATCAAGACCATCGAGAAC
TGCTTGGAGCAGAGAGTCAAGAGATGGAAGGACTCCTACCAGTGGATGG
TTTCCAACGGCTGTCCAGAATCACCACCCATTCAACCACATCAACTAC
CAGATGTACGACTCCCTGTCTACCAGGCCACGCCATCAAGGCCAAGA
TCGACCTGGAGTACAAGAAGTACTCCGGTCCGACAAGGAGAACATCAA
GTCCCAGGTCGAGAACCTGAAGAACTCCTGGACGTCAAGATCTCCGAG
GCCATGAACAAACATCAACAAGTTCATCCGTGAGTGTCCGTACCTACCT
GTTCAAGAACATGCTGCCAAAGGTCATCGACGAGCTGAACAAAGTTGAC
CTGAGAACCAAGACCGAGCTGATCAACCTGATCGACTCCACAAACATCA
TCCTGGTTGGTGAGGTTGActaa

B: BoNTD(H_n) encoded protein SEQ ID NO: 26

MANSRDDSTCIKVKNRNPYVADKDSISQEIFENKIITDETNVQNYSDKFSLD
ESILDGVVPINPEIVDPLLPNVNMEPLNLPGEEIFVFYDDITKYVDYLN
SYYYL
ESQKLSNNVENITLTTVEEALGYSNKIYTFLPSLAEKVNKG
VQAGLFLNWA
NEVVEDFTTNIMKKDTLDKISDVSIIPYIGPALNIGNSALRG
GNFNQAFATAG
VAFLLEGFPEFTIPALGVFTFYSSIQEREK
IITENCLEQRV
KRWKDSYQWM
VSNWLSRITTQFNHINYQM
YDSL
SYQADA
IAK
KIDLEYKKYSGSD
KENIKSQ
VENLKNSLDVK
KISEAMNN
NINK
FIRECS
VTYLF
KNMLPK
VIDELNK
FDLRTKT
ELINL
IDSHNIIL
VGEVD*

FIGURE 15

A: BoNTE(H_n) synthetic gene SEQ ID NO: 27

atgTCCATCTGCATCGAGATCAACAAACGGTGAGCTGTTCTCGTGGCTTCC
GAGAACAGTTACAACGATGACAACATCAACACTCCTAAGGAGATTGACG
ACACCGTCACCTCTAACAAACAACGAAAACGACCTGGACCAGGTCA
CCTAAACTCAACTCCGAGTCCGCCCTGGTCTGTCCGACGAGAAGCTGA
ACCTGACCATCCAGAACGACGCTTACATCCCAGTACGACTCCAACGG
TACATCCGATATCGAGCAGCATGACGTTAACGAGCTAACGTCTTCT
ACTTAGACGCTCAGAAGGTGCCGAGGGTGAGAACAAACGTCAATCTCAC
CTCTTCAATTGACACAGCCTGTTGGAGCAGCCTAACAGATCTACACCTTCT
TCTCCTCCGAGTTCATCAACAAACGTCAACAAAGCCTGTGCAGGCCGCATTG
TTCGTAAGCTGGATTCAAGCTGGAGTTGAGCTTACTGAGGCTAA
CCAGAAGTCCACTGTTGACAAGATCGCTGACATCTCCATCGTCGTCCCCAT
ACATCGGTCTGGCTCTGAACATCGGCAACGAGGCACAGAAGGGCAACTT
CAAGGATGCCCTGAGTTGGTGGCGGTATTTGTTGGAGTTCGAAC
CCGAGCTGCTGATCCCTACCATCCTGGTCTCACGATCAAGTCCTCCTG
GGTCCCTCGACAACAAAGAACAGGTCAATTAGGCCATCAACAAACGCC
TGAAGGAGCGTGACGAGAAGTGGAGGAAGTCTATTCTTCATCGTCTC
GAAGCTGGATGACCAAGATCAACACCCAGTTCAACAAAGCAGAAAGGAGCA
GATGTACCAGGCTCTGCAGAACCAAGGTCAACGCCATCAAGACCATCATC
GAGTCCAAGTACAACACTCCTACACCCTGGAGGAGAACGAGCTTACCA
ACAAGTACGATATCAAGCAGATCGAGAACGAGCTGAACCAGAACGGTCTC
CATGCCATGAACAAACATCGACAGGTTCTGACCGAGTCCTCCATCTCCT
ACCTGATGAAGCTCATCAACGAGGTCAAGATCAACAAAGCTGCGAGAGTA
CGACGAGAACATGTCAGACGTACCTGCTGAACATCATCCAGCACCGGA
TCCATCCTGtaa

B: BoNTE(H_n) encoded protein SEQ ID NO: 28

MSICIEINNGELFFVASENS YNDDNINTPKIIDDVT SNNNYENDLDQVILNF
NSE SAPGLSDEKLNLTIQNDAYIPKYDSNGTSDIEQHDVNELNVFFYLDQK
VPEGENNVLNTSSIDTALLEQPKIYTFFSSEFINNVNKPVQAALFVSWIQQL
VDFTEANQKSTVDKIADISIVVPYIGLALNIGNEAQKGNFKA
LEFEPELLIPTILVFTIKSFLGSSDNKNKVIA
NWMTKINTQFNKRKEQMYQALQNQVNAIKTIIESKYN
DIKQIENELNQKVSIAMNNIDRFLTESSIS YLMKLINEVKINKLREYDENVKT
YLLNYIIQHGSIL*

FIGURE 16

A: BoNTF(H_N) synthetic gene SEQ ID NO: 29

atgGCCCCACCACCGTCTGTATTAGAGTCACAAACTCAGAATTATTCTTT
GTCGCTTCCGAGTCAAGCTACAACGAGAACGATATTAACACACCTAAAG
AGATTGACGATACTACCAACCTAAACAACACTACCGGAACAACTTGGA
TGAGGTTATTTGGATTACAACCTCACAGACCATCCCTCAAATTCCAACC
GTACCTTAAACACTCTTGTCCAAGACAACACTCCTACGTTCCAAGATACTGAT
TCTAACGGTACCTCAGAGATCGAGGAGTATGATGTTGTTGACTTTAACGT
CTTTTCTATTGCATGCCAGAAGGTGCCAGAAGGTGAAACCAACATCT
CATTGACTTCTCCATTGATACCGCCTGTTGGAAGAGTCCAAGGATATC
TTCTTTCTCGGAGTTATCGATACTATCAACAAAGCCTGTCAACGCCGC
TCTGTTCATGATTGGATTAGCAAGGTATCAGAGATTACCAACTGAAG
CTACTCAAAAGTCCACTGTTGATAAGATTGCTGACATCTCTTGATTGTC
CCCTATGTCGGTCTGCTTGAAACATCATTATTGAGGCAGAAAAGGGTAA
CTTGAGGAGGCTTGAAATTGTTGGAGTTGGTATTTGTTGGAGTTG
TTCCAGAACTTACCAATTCCCTGTCAATTAGTTTACGATCAAGTCCTACA
TCGATTCATACGAGAACAGAATAAGCAATTAAAGCTATTAACAAC
CTTGATCGAAAGAGAGGGCTAAGTGGAAAGGAAATCTACTCATGGATTGTA
TCAAACGGCTTACTAGAATTAAACACTCAATTAAACAAGAGAAAGGAGC
AAATGTACCAGGGCTGCAAAACCAAGTCGATGCTATCAAGACTGCAAT
TGAATACAAGTACAACAACATATACTTCCGATGAGAAGAACAGACTGAA
TCTGAATACAATATCAACAAACATTGAAGAAGAGTTGAACAAGAAAGTT
CTTGCTATGAAGAATATCGAAAGATTATGACCGAACCTCTATCTCT
TACTTGATGAAGTTGATCAATGAGGCCAAGGTTGGTAAGTTGAAGAAGT
ACGATAACCACGTTAAGAGCGATCTGCTGAACATCATTCTGACCAACAG
ATCAATCCTGGAGAGCAGACAAACGAGCTGAGTGAATTGGTTACTTCC
ACTTGAACTCCTCCATTCCATTGAGCTTCTtaa

B: BoNTF(H_N) encoded protein SEQ ID NO: 30

MAPPRLCIRVNNSELFFVASSESSYNENDINTPKIEDDTNLNNNYRNNLDEVI
LDYNSQTIPQISNRTLNTLVQDNSYVPRYDSNGTSEIEYDVDFNVFFYLH
AQKVPEGETNISLTSSIDTALLEESKDIFFSSEFIDTINKPVNAALFDWISKVIR
DFTTEATQKSTVDKIADISLIVPYVGLALNIIAEKGNFEAFELLGVGILLEF
VPELTIPVILVFTIKSYIDSYENKNKAIAKAINNSLIEREAKWKEIYSWIVSNWL
TRINTQFNKRKEQMYQALQNQVDAIKTAIEYKYNNYTSDEKNRLESEYNIN
NIEEELNKKVSLAMKNIERFMTESSISYLMKLINEAKVGKLKKYDNHVKSSDL
LNYILDHRSILGEQTNELSDLVTSTLNSSIPFELS*

FIGURE 17

A: BoNTG(H_n) synthetic gene SEQ ID NO: 31

atggccAAAAATACCGTAAATCTGAACAGTGTATTATTGTTAATAATGAG
GATTATTTCTAGCTAATAAAGATAGTTTCAAAAGATTAGCTAA
AGCAGAAACTATAGCATATAATAACACAAAATAACTATAGAAAATAAT
TTTCTATAGATCAGTGATTAGATAATGATTAAAGCAGTGGCATAGA
CTTACCAAATGAAAACACAGAACCAATTACAATTTGACGACATAGAT
ATCCCTGTGTATATTAAACAATCTGTTAAAAAAAAAATTTGTGGATGG
AGATAGCCTTTGAATATTACATGCTCAAACATTCCCTCTAATATAG
AAAATCTACAACTAACGAATTCAATTAAATGATGCTTAAGAAATAATAA
TAAAGTCTATACTTTCTACAAACCTTGTGAAAAAGCTAATACAG
TTGTAGGTGCTTCACTTTGTAAACTGGTAAAAGGAGTAATAGATGAT
TTTACATCTGAATCCACACAAAAAGTACTATAGATAAAGTTCAAGATGT
ATCCATAATTATTCCCTATATAGGACCTGCTTGAATGTAGGAAATGAAA
CAGCTAAAGAAAATTAAAAATGCTTGTGAAATAGGTGGAGCCGCTAT
CTTAATGGAGTTATTCCAGAACCTTATTGTACCTATAGTTGGATTTTAC
ATTAGAACATATGTAGGAAATAAAGGGCATATTATTGACGATATCC
AATGCTTAAAGAAAAGGGATCAAAAATGGACAGATATGTATGGTTGA
TAGTATCGCAGTGGCTCTCAACGGTTAATACTCAATTATACAATAAAA
GAAAGAACATGTACAATGCTTAAATAATCAATCACAAAGCAATAGAAAAAA
TAATAGAACATCAATATAATAGATATAGTGAAGAACATAAATGAATAT
TAACATTGATTITAATGATATAGATTAAACTTAATCAAAGTATAAATT
TAGCAATAAACATATAGATGATTATAAACCAATGTTCTATATCATAT
CTAATGAATAGAACATGATTCCATTAGCTGAAAAAGTTAAAAGACTTTG
ATGATAATCTTAAGAGAGATTATTGGAGTATATAGATACAAATGAAC
ATATTACTGATGAAGTAAATATTCTAAAATCAAAGTAAATAGACAC
CTAAAAGACAGTATACCATTGATCTTCACTATACCCtaa

B: BoNTG(H_n) encoded protein SEQ ID NO: 32

MAKNTGKSEQCIIVNNEDLFFIANKDSFSKDLAKAETIAYNTQNNTIENNFSI
DQLILDNDLSSGIDLPNENTEPFTNFDDIDIPVYIKQSALKKIFVDGDSLFEYL
HAQTFPSNIENQLTNSLNDALRNNNKVYTFFSTNLVEKANTVVGASLFVN
WVKGVIDDFTSESTQKSTIDKVSDVSIIIPYIGPALNVGNETAKENFKNAFEIG
GAAILMEFIPELIVPIVGFFTLESYVGNKGHIIMTISNALKKRDQKWTDMYGL
IVSQWLSTVNTQFYTIKERMYNALNNQSQAIEKJIEDQYNRYSEEDKMNINI
DFNDIDFKLNQSINLAINNIDDFINQCSISYLMNRMPLAVKKLKDFDDNLKR
DLLEYIDTNELYLLDEVNILSKVNRHLKDSIPFDLSLYT*

FIGURE 18

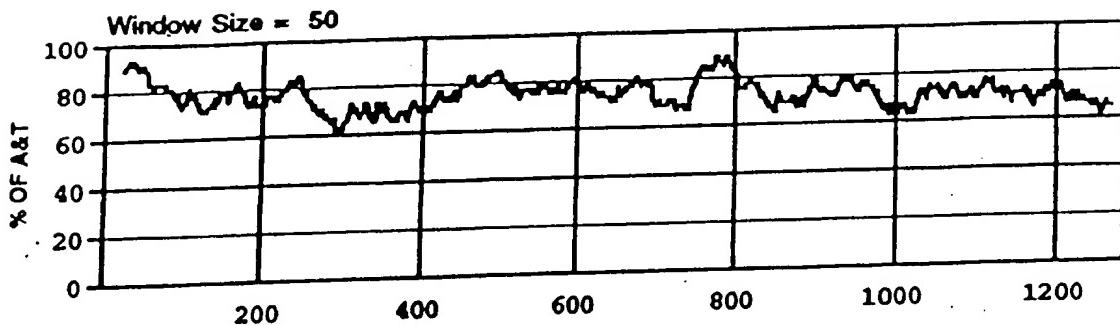
A: First BoNTF(Hc) gene: SEQ ID NO: 33

GAATTCACGatgTCTTACACTAACGACAAAATCCTGATCCTGTACTTCAAC
AAACTGTACAAAAAAATCAAAGACAACCTATCCTGGACATGCGTTACG
AAAACAACAAATTGACATCTCTGGCTATGGTTCTAACATCTCTATC
AACGGTGACGTCTACATCTACTCTACTAACCGCAACCAGTCGGTATCTA
CTCTTCTAAACCGTCTGAAGTAAACATCGCTCAGAACAAACGACATCATCT
ACAACGGTCGTTACCAGAACCTCTATCTCTGGTTCTGGTATCCCG
AAATACTTCAACAAAAGTTAACCTGAACAAACGAATAACTATCATCGACT
GCATCCGTAACAACAACACTCTGGTGGAAAATCTCTCTGAACATACAACAA
AATCATCTGGACTCTGAGGACACTGCTGGTAACAACCAGAAACTGGTT
TTCAACTACACTCAGATGATCTCTATCTGACTACATTAAATAATGGAT
CTTCGTTACTATCACTAACAAACCGTCTGGTAACTCTCGTATCTACATCA
ACGGTAACCTGATCGATGAAAAATCTATCTCTAACCTGGTGACATCCA
CGTTCTGACAACATCCTGTTAAAATCGTGGTGCAACGACACCGCGTT
ACGTTGGTATCCGTTACTTCAAAGTTTCGACACTGAACACTGGTAAAAGT
GAAATCGAAAACCTGTACTCTGACGAACCGGACCCGTCTACCTGAAAG
ACTTCTGGGTAAACTACCTGCTGTACAACAAACGTTACTACCTGCTGAAC
CTGCTCCGGACTGACAACATCTACTCAGAACTCTAACCTCTGAACAT
CAACCAGCAGCGTGGTGTATCAGAAACCTAATATCTCTCTAACACTC
GTCTGTACACTGGTGTGAAGTTATCATCCGTAACCGGTTACTGAC
ATCTCTAACACTGACAACCTCGTACGTAACCGGTTACTGACATCTCTATCG
CGTTGTTGACCGTGACGTTGAATACCGTCTGTACGCTGACATCTCTATCG
CTAAACCGGAAAAAAATCATCAAACGATCCGTACTCTAACCTCTAACAA
CTCTCTGGGTCAAGTCATCGTTATGGACTCGATCGTAACAAACTGCACTA
TGAACCTCCAGAACAAACAACGGTGGTAACATCGGTCTGCTGGTTCCA
CTCTAACAAACCTGGTGTCTCTCATGGTACTACAACAAACATCCGTAACAA
ACACTCTTCTAACGGTGTCTCTGGTCTTCATCTCTAACAGAACACGGTT
GGCAGGAAAAActaaGAATT

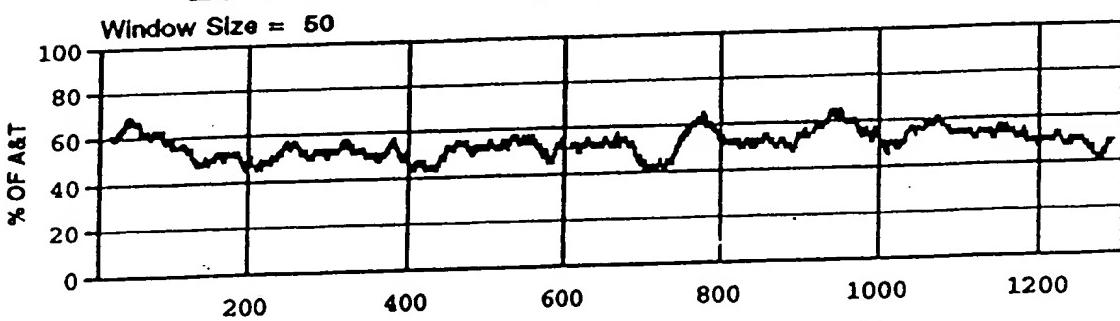
B: BoNTF(Hc) #1 encoded protein: SEQ ID NO: 34

MSYTNDKILILYFNKLYKKIKDNSILDMDRYENNKFIDISGYGSNISINGDVYIY
STNRNQFGIYSSKPSEVNIAQNNDIYNGRYQNFSISFWVRIPKYFNKVNLNN
EYTIIDCIRNNNSGWKISLNYNKIIWTLQDTAGNNQKLVFNYTQMISISDYIN
KWIFVTITNNRLGNSRIYINGNLIDEKSISNLGDIHVDSDNLFKIVGCNDTRYV
GIRYFKVFDTELGKTEIETLYSDEPDPSILKDFWGNYLLYNKRYYLLNLLRT
DKSITQNSNFLNINQQRGVYQKPNIFSNTRLYTGVVEVIIRKNGSTDISNTDNF
VRKNDLAYINVVDRDVEYRLYADISIAKPEKIKLIRTSNSNNSLGQIIVMDSI
GNNTMFQNNNGGNIGLLGFHSNNLVASSWYNNIRKNTSSNGCFWSFIS
KEHGWQEN*

A: Natural BoNTF(Hc) Gene



B: First BoNTF(Hc) Synthetic Gene



C: Second BoNTF(Hc) Synthetic Gene

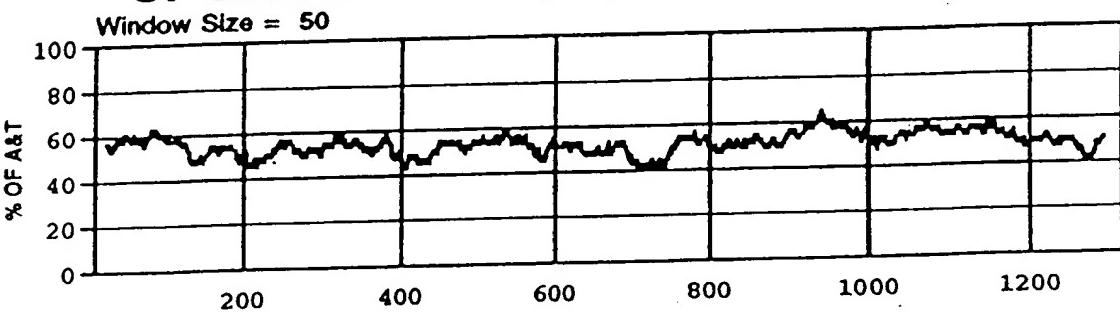


Fig 19

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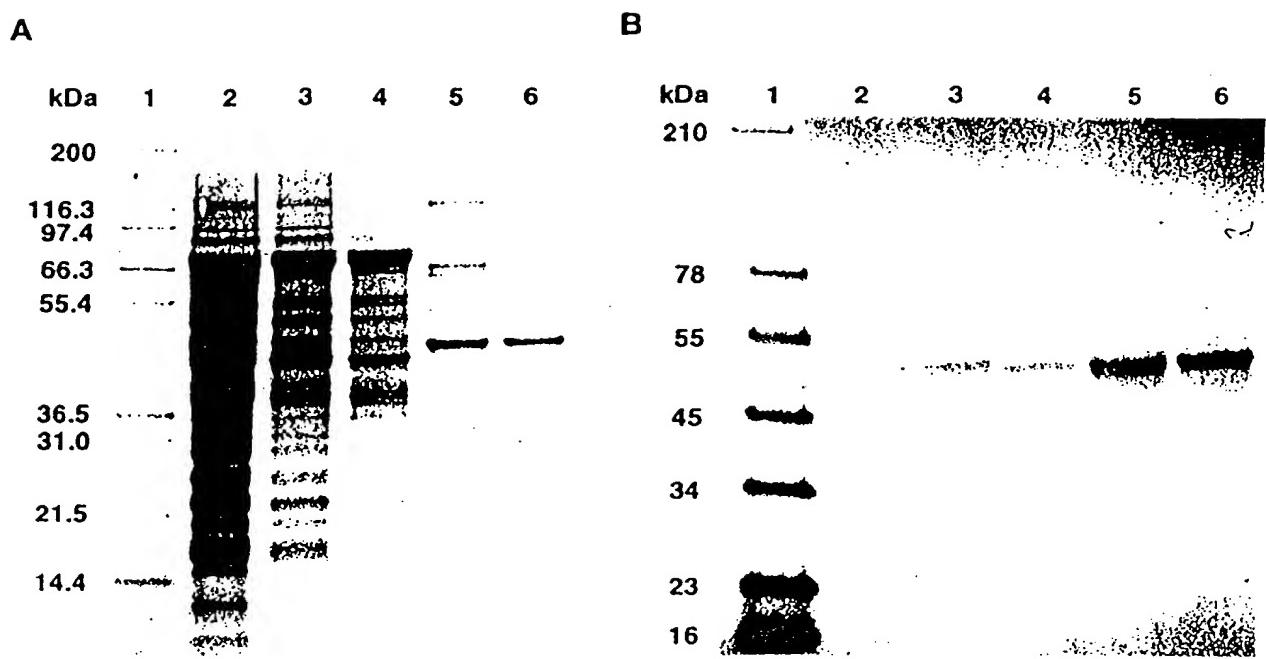


Fig 20

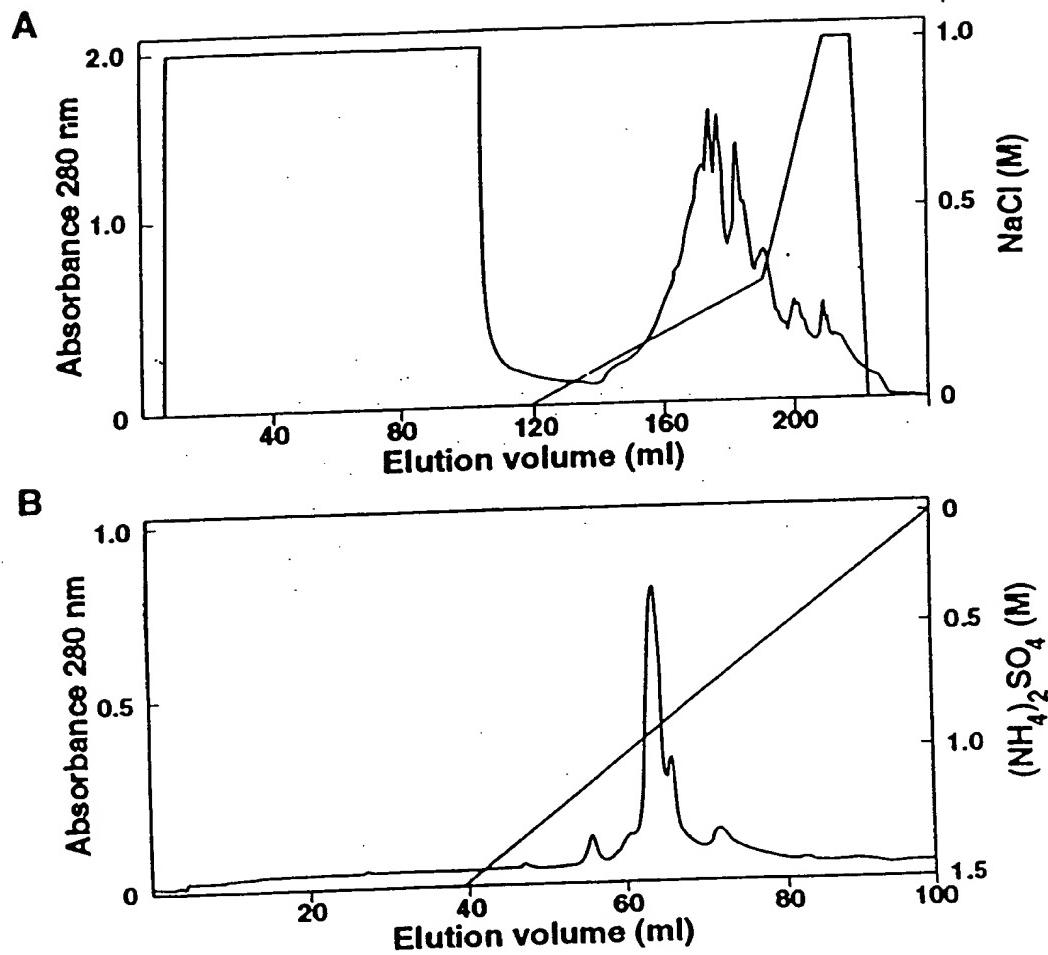


Fig 21

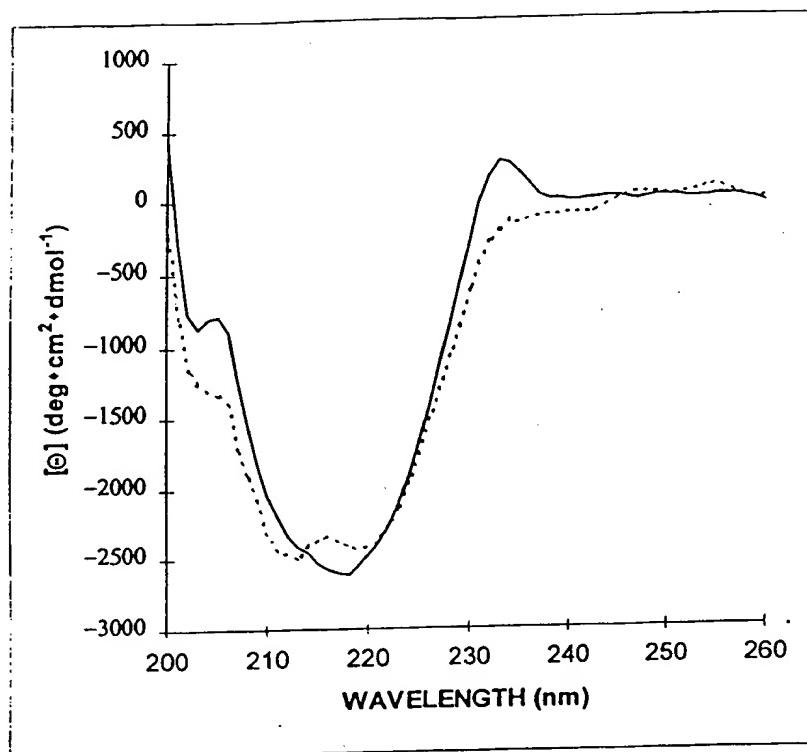


Fig 22